

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference JCAL5-100PCT	FOR FURTHER ACTION	See item 4 below
International application No. PCT/JP2004/019271	International filing date (<i>day/month/year</i>) 16 December 2004 (16.12.2004)	Priority date (<i>day/month/year</i>) 22 January 2004 (22.01.2004)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant CALSONIC KANSEI CORPORATION		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

- | | | |
|-------------------------------------|---------------------|---|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

Date of issuance of this report 19 June 2007 (19.06.2007)

Authorized officer

Masashi Honda

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Form PCT/IB/373 (January 2004)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

		Date of mailing (day/month/year) see form PCT/ISA/210 (second sheet)
Applicant's or agent's file reference see form PCT/ISA/220		FOR FURTHER ACTION See paragraph 2 below
International application No. PCT/JP2004/019271	International filing date (day/month/year) 16.12.2004	Priority date (day/month/year) 22.01.2004
International Patent Classification (IPC) or both national classification and IPC B60H1/32		
Applicant CALSONIC KANSEI CORPORATION		

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or Industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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Fax: +49 89 2399 - 4465

Authorized Officer

Gumbel, A

Telephone No. +49 89 2399-7898



**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/JP2004/019271

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 a sequence listing
 table(s) related to the sequence listing
 - b. format of material:
 in written format
 in computer readable form
 - c. time of filing/furnishing:
 contained in the international application as filed.
 filed together with the international application in computer readable form.
 furnished subsequently to this Authority for the purposes of search.
3. In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/JP2004/019271

**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or
industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	5,6,8,13,14,16
	No: Claims	1-4,7,9-12,15
Inventive step (IS)	Yes: Claims	
	No: Claims	1-16
Industrial applicability (IA)	Yes: Claims	1-16
	No: Claims	

2. Citations and explanations

see separate sheet

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/JP2004/019271

Reference is made to the following documents:

- D1: EP-A-1 095 804 (KABUSHIKI KAISHA TOYOTA JIDOSHOKKI; KABUSHIKI KAISHA TOYODA JIDOSHOKKI) 2 May 2001 (2001-05-02)
- D2: US 2003/051495 A1 (OHTA HIROMI ET AL) 20 March 2003 (2003-03-20)
- D3: US 2001/025500 A1 (BASCOBERT RENE F) 4 October 2001 (2001-10-04)
- D4: US 2002/023451 A1 (KURODA YASUTAKA ET AL) 28 February 2002 (2002-02-28)

Re Item V

1.

Document D1, which is considered to represent the most relevant state of the art, discloses (Par. 39-43; Fig. 1,7,8): a

control method for controlling a refrigeration cycle of an air conditioning system for a vehicle, which is equipped with a variable displacement compressor (CM) driven by an engine, the method comprising the steps of:

determining a limit value ($70, D_{tmin}$) of a discharge rate of the variable displacement compressor by an engine speed or a variable (CV, V, NE) related to the engine speed and controlling an operation of the variable displacement compressor on the basis of the limit value.

and a device for controlling a refrigeration cycle in the above described way.

The subject-matter of claims 1 and 9 is also shown in D2 (Par. 44-51, Fig. 1,3).

The subject-matter of independent claims 1 and 9 is therefore not new and does not satisfy the criterion set forth in Article 33(2) PCT.

2.

Dependent claims 2-8 and 10-16 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the Article 33(2)

**WRITTEN OPINION OF THE
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AUTHORITY (SEPARATE SHEET)**

International application No.
PCT/JP2004/019271

and (3) PCT in respect of novelty or inventive step, the reasons being as follows:

2.1

The subject-matter of claims 2-4,7,10-12 and 15 is disclosed in D2 (Par. 44-51, Fig. 1,3).

2.2

The additional features of dependent claims 5,6 and 13,14 have already been employed for the same purpose in a similar control method/system, see document D3, paragraph 33. It would therefore be obvious to the person skilled in the art, to apply these features with corresponding effect to a method/system according to document D1, thereby arriving at method/system according to claims 5,6,13,14.

2.3

CO₂ as refrigerant has been already used in a similar refrigeration cycle, see document D4, paragraphs 47,78. It would be obvious to the person skilled in the art, namely when the same result is to be achieved, to apply these features with corresponding effect to a refrigeration cycle according to document D1, thereby arriving at a refrigeration cycle according to claims 8 and 16.

3.

The features of claims 1 to 16 are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

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4. **Additional comments:**

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/JP2004/019271

**Box No. V Reasoned statement under Rule 43b/s.1(a)(I) with regard to novelty, inventive step or
industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	5,6,8,13,14,16
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Inventive step (IS)	Yes: Claims	
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Industrial applicability (IA)	Yes: Claims	1-16
	No: Claims	

2. Citations and explanations

see separate sheet

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